

WHAT IS CLAIMED IS:

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A 5
1. A composition of matter comprising:
a positively charged substrate; and at least one
water soluble tetrazolium salt on at least one surface of said positively charged
substrate.

2. The composition according to Claim 1, wherein said positively charged substrate
is a bibulous substrate.

3. The composition according to Claim 1, wherein said positively charged substrate
is a non-bibulous substrate.

4. The composition according to Claim 1, wherein said water soluble tetrazolium salt
is part of an analyte oxidizing signal producing system.

5. The composition according to Claim 4, wherein said analyte oxidizing signal
producing system comprises an analyte oxidase.

6. The composition according to Claim 4, wherein said analyte oxidizing signal
producing system comprises an analyte dehydrogenase.

7. The composition according to Claim 4, wherein said analyte oxidizing signal
producing system further comprises an electron transfer agent.

8. The composition according to Claim 4, wherein said analyte oxidizing signal
producing system further comprises an enzyme cofactor.

9. The composition according to Claim 4, wherein said analyte oxidizing signal
producing system is present as a reagent composition.

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A reagent test strip comprising:

a positively charged substrate; and

an analyte oxidizing signal producing system present on said positively charged substrate, wherein said analyte oxidizing signal producing system includes a water soluble tetrazolium salt.

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The test strip according to Claim 10, wherein said positively charged substrate is bibulous.

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The test strip according to Claim 10, wherein said positively charged substrate is non-bibulous.

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The test strip according to Claim 10, wherein said water soluble tetrazolium salt accepts a hydride to produce a water soluble-formazan product.

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The test strip according to Claim 10, wherein said analyte oxidizing signal producing system comprises an analyte oxidase.

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The test strip according to Claim 14, wherein said analyte oxidizing signal producing system further comprises an electron transfer agent.

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The test strip according to Claim 14, wherein said analyte oxidizing signal producing system further comprises an enzyme cofactor.

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The test strip according to Claim 10, wherein said analyte oxidizing signal producing system is a glucose oxidizing signal producing system.

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An analyte detection or measurement system comprising:

(a) a reagent test strip comprising:

(i) a positively charged substrate; and

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(ii) an analyte oxidizing signal producing system present on said substrate, wherein said signal producing system includes a water soluble tetrazolium salt capable of accepting a hydride to produce a water soluble formazan; and

5 (b) an automated instrument.

~~19~~¹⁷ A method for detecting the presence or determining the concentration of an analyte in a sample, said method comprising:

(a) applying said physiological sample to a reagent test strip comprising:

10 (i) a positively charged substrate; and

(ii) an analyte oxidizing signal producing system present on said substrate, wherein said signal producing system includes a water soluble tetrazolium salt capable of producing a water soluble formazan product, whereby a non-washable spot comprising said formazan product is produced on said

15 substrate;

(b) detecting said non-washable spot; and

(c) relating said detected non-washable spot to the presence or concentration of said analyte in said physiological sample.

~~20~~¹⁸ The method according to Claim ~~19~~¹⁷, wherein said signal producing system further comprises an analyte oxidase.

~~21~~¹⁹ The method according to Claim ~~20~~¹⁸, wherein said signal producing system further comprises at least one of an electron transfer agent .

25 ~~22~~²⁰ The method according to Claim ~~19~~¹⁷, wherein said sample is whole blood or a derivative thereof.

~~23~~²¹ The method according to Claim ~~19~~¹⁷, wherein said detecting and relating steps are

30 carried out by an automated instrument.

224. A kit for use in determining the concentration of an analyte in a physiological sample, said kit comprising:

(a) a reagent test strip comprising:

(i) a positively charged substrate; and

5 (ii) an analyte oxidizing signal producing system present on said substrate, wherein said signal producing system includes a water soluble tetrazolium salt capable of producing a water soluble formazan product; and

(b) at least one of:

(i) a means for obtaining said physiological sample and

10 (ii) an analyte standard.

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25. The kit according to Claim 24, wherein said means for obtaining said physiological sample is a lance.

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15 26. The kit according to Claim 24, wherein said analyte standard comprises a standardized concentration of a known reagent.

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27. The kit according to Claim 24, wherein said kit comprises a means for obtaining said physiological sample and an analyte standard.

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